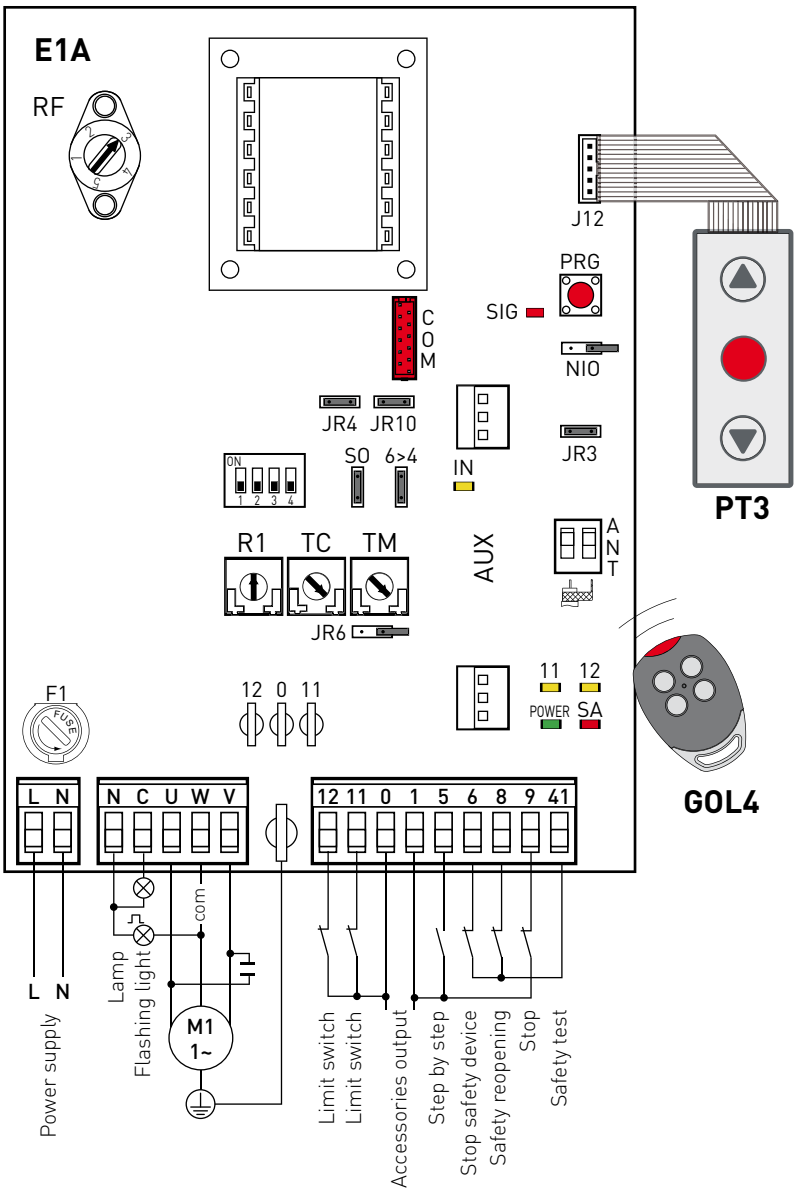
Ditec E1A

IP2045EN

Control panel installation manual for one motor automation with built-in radio.



IP2045EN - 2013-03-26

Index

	Subject	Page
1.	**General safety precautions**	4
2.	**EC declaration of conformity**	5
3.	**Technical data**	5
3.1	Applications	5
4.	**Commands**	6
4.1	Self-controlled safety edge	6
5.	**Outputs and accessories**	7
6.	**Adjustments**	8
6.1	Trimmer	8
6.2	Dip-switch	8
6.3	Jumper	9
6.4	Signals	9
7.	**Radio**	10
8.	**Start-up**	11
9.	**Troubleshooting**	11
10.	**Application example for sliding doors and gates**	12
11.	**Application example for in-parallel automations**	12
12.	**Application example for barriers**	13
13.	**Application example for rolling shutters**	13
14.	**Application example for sectional overhead doors**	14

Caption

This symbol indicates instructions or notes regarding safety issues which require particular attention.

This symbol indicates informations which are useful for correct product function.

This symbol indicates instructions or notes intended for technical and expert personnel.

This symbol indicates operations not to be effected for not compromise the correct operation of the automation.

This symbol indicates options and parameters which are only available with the indicated item.

This symbol indicates options and parameters which are not available with the indicated item.

1. General safety precautions

This installation manual is intended for qualified personnel only.
Installation, electrical connections and adjustments must be performed in accordance with Good Working Methods and in compliance with applicable regulations.
Before installing the product, carefully read the instructions. Bad installation could be hazardous.

The packaging materials (plastic, polystyrene, etc.) should not be discarded in the environment or left within reach of children, as these are a potential source of hazard.
Before installing the product, make sure it is in perfect condition.
Do not install the product in an explosive environment and atmosphere: gas or inflammable fumes are a serious hazard risk.
Before installing the motors, make all structural changes relating to safety clearances and protection or segregation of all areas where there is risk of being crushed, cut or dragged, and danger areas in general.
Make sure the existing structure is up to standard in terms of strength and stability. The motor manufacturer is not responsible for failure to use Good Working Methods in building the frames to be motorized or for any deformation occurring during use.
The safety devices (photocells, safety edges, emergency stops, etc.) must be installed taking into account: applicable laws and directives, Good Working Methods, installation premises, system operating logic and the forces developed by the motorized door.

The safety devices must protect any areas where the risk exists of being crushed, cut or gragged, or where there are any other risks generated by the motorized door.
Apply hazard area notices required by applicable regulations.
Each installation must clearly show the identification details of the motorized door.
When necessary, connect the motorized door to a reliable earth system made in accordance with applicable safety regulations.
During installation, maintenance and repair, interrupt the power supply before opening the lid to access the electrical parts.
The protective casing of the automation must be removed by qualified personnel only.

To handle electronic parts, wear earthed antistatic conductive bracelets. The motor manufacturer declines all responsibility in the event of component parts being fitted that are not compatible with the safe an correct operation.
For repairs or replacements of products only original spare parts must be used. The installer shall provide all information relating to automatic, manual and emergency operation of the motorized door, and provide the user with operating instructions.

1.1 Installation warning

Secure the control panel permanently. Drill a hole into the lower side of the container so as to run the cables through it. Secure the cables, if they are accessible, by means of appropriate gland plates (not provided by us). Keep the line and motor conductors separate (at least 8 mm) from the control conductors at the terminal board connection points (for example, by means of clamps). Connect the line and motor protection conductors (yellow-green) by means of the transformer and control panel using the clamp provided. At the end of the installation to close again the container.

IP2045EN - 2013-03-26

2. EC Declaration of conformity

The manufacturer Entrematic Group AB with headquarters in Lodjursgatan 10, SE-261 44 Landskrona, Sweden declares that the control panel Ditec E1A is in conformity with the provisions of the following EC directives:
EMC Directive 2004/108/CE;
Low energy Directive 2006/95/CE.
R&TTE Directive 1999/5/CE

Landskrona, 29-01-2013

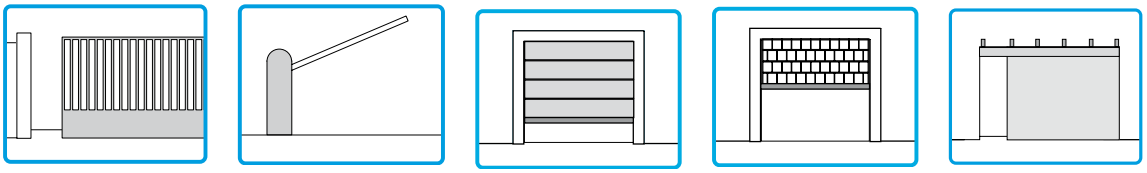
Marco Pietro Zini
(BA President)

3. Technical data

	E1A	E1AJ
Power supply	230 V~ 50 Hz	120 V~ 60 Hz
Fuse F1	F6,3A F8A with NIO=OFF	F6,3A
Fuse F2	/	F6,3A
Motor output	230 V~ 5A max	120 V~ 6,3A max
Accessories power supply	24 V⎓ 0,5 A	24 V⎓ 0,5 A
Temperature	min -20 °C max +55 °C	min -20 °C max +55 °C
Degree of protection	IP55	IP55
Radio frequency	433,92 MHz	433,92 MHz
Memorizable radio codes	200	200

NOTE: the given operating and performance features can only be guaranteed with the use of DITEC accessories and safety devices.

3.1 Applications

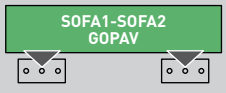


4. Commands

Command		Function	Description
1 — 5	N.O.	STEP-BY-STEP WITH AUTOMATIC CLOSING	With DIP1=OFF and TC<MAX, the closure of the contact activates an opening or closing operation in the following sequence: open-stop-close-open. NOTE: the stop is not permanent, but has the duration set by TC.
		STEP-BY-STEP WITHOUT AUTOMATIC CLOSING	With DIP1=OFF and TC=MAX, the closure of the contact activates an opening or closing operation in the following sequence: open-stop-close-open.
		OPENING WITH AUTOMATIC CLOSING	With DIP1=ON and TC<MAX, the closure of the contact activates an opening operation.
		OPENING WITHOUT AUTOMATIC CLOSING	With DIP1=ON and TC=MAX, the closure of the contact activates an opening operation. If 6→4=ON, with the automation idle, contact 1-5 performs the closure operation as well. If 6→4=OFF, the closure operation is performed by contact 1-6.
1 — 6	N.O.	CLOSING	With 6→4=OFF, the closure of the contact activates a closing operation.
41 — 6	N.C.	SAFETY STOP	The opening of the safety contact stops and prevents any movement.
41 — 8	N.C.	REVERSAL SAFETY DEVICE	Opening the safety contact triggers a reversal of the movement (reopening) during a closing operation.
1 — 9	N.C.	STOP	Opening the safety contact stops the current operation.
		EMERGENCY STOP	To enable the emergency stop function (e.g. with a specific red button), connect the opening and closing controls to terminal 9 instead of 1 (9-5, 9-6).
1 — 9	N.O.	HOLD-TO-RUN FUNCTION	Permanently opening the safety contact enables the operator presence dependent function. In this state, the opening (1-5) and closing (1-6) controls function only if held in the pressed position, and the automation stops when the controls are released. Any safety devices, plus the automatic closing, are disactivated.
0 — 11	N.C.	CLOSING LIMIT SWITCH	With DIP2=OFF, the opening of the contact blocks the movement of the automation during the closing phase. With DIP2=ON, the opening of the contact blocks the movement of the automation during the opening phase. Alternatively, you can connect the limit switch to the fastons 0-11 (in this case, the terminals 0-11 must not be jumped).
0 — 11	N.O.	CLOSING PROXIMITY SWITCH	In the event of obstacle detection during closing and before the activation of the proximity limit switch, the door wing reopens; after the activation of the proximity limit switch, the door wing blocks against the mechanical closing stop.
0 — 12	N.C.	OPENING LIMIT SWITCH	With DIP2=OFF, the opening of the contact blocks the movement of the automation during the opening phase. With DIP2=ON, the opening of the contact blocks the movement of the automation during the closing phase. Alternatively, you can connect the limit switch to the fastons 0-12 (in this case, the terminals 0-12 must not be jumped).
0 — 12	N.O.	OPENING PROXIMITY SWITCH	In the event of obstacle detection before the activation of the proximity limit switch while opening, the door wing stops, performing a disengagement operation; after the activation of the proximity limit switch, the door wing blocks against the mechanical opening stop.

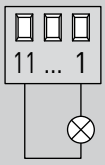
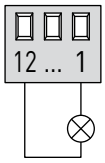
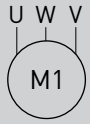
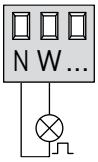
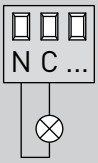
WARNING: Make a jumper on all N.C. contacts if not in use. The terminals with the same number are equal.

4.1 Self-controlled safety edge SOFA1-SOFA2 or GOPAVRS

Command		Function	Description
		SAFETY TEST	Place the SOFA1-SOFA2 or GOPAVRS device into its housing for plug-in cards AUX. Connecting terminal 41 enables a safety edge test cycle before every operation. If the test fails the SA led flashes and the test is repeated.
1 — 6	N.C.	STOP SAFETY DEVICE	Connect the output contact of device SOFA1-SOFA2 to terminals 1-6 on the control panel (in series with the photocell output contact, if installed).
1 — 8	N.C.	REVERSAL SAFETY DEVICE	Connect the output contact of device SOFA1-SOFA2 to terminals 1-8 on the control panel (in series with the photocell output contact, if installed). ATTENTION: for quick operation on the safety edge, connect it to contact 1-6.

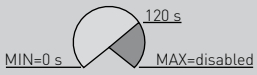
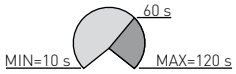
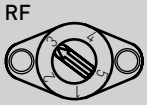
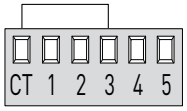
IP2045EN - 2013-03-26

5. Output and accessories

Output	Value - Accessories	Description
	24 V⎓ 0,5 A	Accessories power supply. Power supply output for external accessories, including automation status lamps.
AUX	SOFA1-SOFA2 GOPAV	The control panel has one space for coupling board, type radio receivers, magnetic loops etc. The coupling board working mode is selected by DIP1. WARNING: the plug-in cards must be inserted and removed with the power supply disconnected.
	24 V⎓ 3 W	Automation open lamp. Only with the limit switch 0-11 (N.C.) connected and DIP2=OFF will the light switch off when the automation is closed.
		Automation closed lamp. With DIP2=ON, the light switches off when the automation is open.
	QIKLUX 24 V⎓ 120 mA max	Light kit for QIK barrier. With DIP2=ON, the light switches off when the automation is open.
	24 V⎓ 3 W	Automation closed lamp. Only with the limit switch 0-12 (N.C.) connected and DIP2=OFF will the light switch off when the automation is open.
		Automation open lamp. With DIP2=ON, the light switches off when the automation is closed.
	QIKLUX 24 V⎓ 120 mA max	Light kit for QIK barrier. With DIP2=OFF, the light switches off when the automation is open.
	230 V~ 5 A 120 V (E1AJ)	Motor 1 (M1). Terminal W must be connected to the common motor phase connection. The condenser must be connected between the U and V phases.
	LAMP 230 V~ 25 W 120 V~ (E1AJ)	Flashing light. Activated during opening and closing operations.
	LUXK7 230 V~ 60 W 120 V~ (E1AJ)	Courtesy light in CROSS sliding automation. Comes on for 180 seconds after receiving any opening (total or partial) or closing command. WARNING: use a double insulated cable
	230 V~ 100 W 120 V~ (E1AJ)	Drive unit external courtesy light. Comes on for 180 seconds after receiving any opening (total or partial) or closing command. WARNING: use a double insulated cable
J12		Membrane push-button panel (PT3). Starts the opening operation. NOTE: to activate the closing operation, connect the connector of the push-button panel to J12 (rotated by 180°).
		Membrane push-button panel (PT3). Causes the blocking of the movement.
		Membrane push-button panel (PT3). Starts the closing operation. NOTE: to activate the opening operation, connect the connector of the push-button panel to J12 (rotated by 180°).

6. Adjustments

6.1 Trimmer

	Trimmer	Description
	R1 	Setting obstacle thrust. The control panel is equipped with a safety system that stops motion if an obstacle is encountered during an opening operation and either stops or reverses motion during a closing operation. R1=MIN gives maximum obstacle sensitivity (minimum thrust). R1=MAX disables detection (maximum thrust).
	TC 	Setting automatic closing time. From 0 to 120 s. With TC=MAX, the automatic closing is disactivated. The count begins from the blocking of the automation, for the time set by the TC. With DIP3=OFF, once a safety switch has been activated, the counter starts as soon as the safety switch is released (for example, after passing through the photocells), and lasts for a period of time set with TC (50%). Note: with DIP3=OFF and 6→4=OFF, the automatic closing is immediate. With DIP3=ON, the counter starts when automation is opened and lasts for the entire duration set with TC (100%). NOTE: after the activation of the stop command, once contact 1-9 has closed again, the automatic closing is only activated after a total or step-by-step opening command.
	TM 	Setting the operating time. From 10 to 120 s. NOTE: with NC limit switch, set TM=MAX.
E1A	**RF** 	Power setting. Sets voltage supplied to motor (1=MIN / 5=MAX).
E1AJ	**RF** 	Power setting. Sets voltage supplied to motor (CT-1=MIN / CT-5=MAX). ATTENTION: disconnect the power supply before adjusting.

6.2 Dip-switch

DIP	Description	OFF	ON
DIP1	Control 1-5 function.	Step-by-Step.	Opening.
DIP2	Direction selection.	Opens towards right.	Opens towards left.
DIP3	Restore automatic closing time.	50% Immediate if 6→4=OFF. NOTE: the setting of DIP3=OFF and 6→4=OFF is recommended for the immediate reclosing of the barriers.	100% NOTE: the setting of DIP3=ON is recommended for overhead and sectional doors, and condominial entrances.
DIP4	Automation status at power on. Indicates how the control panel considers automation when powered up.	Open. If DIP1=OFF, the first command 1-5 activates the closing. If DIP1=ON, the first command 1-5 activates the opening. NOTE: with a limit switch installed, preferably set DIP4=OFF.	Closed. The first command 1-5 activates the opening. NOTE: the automatic closing will not be the first command, even if enabled. If the automatic closing function is not used, preferably set DIP4=ON.

IP2045EN - 2013-03-26

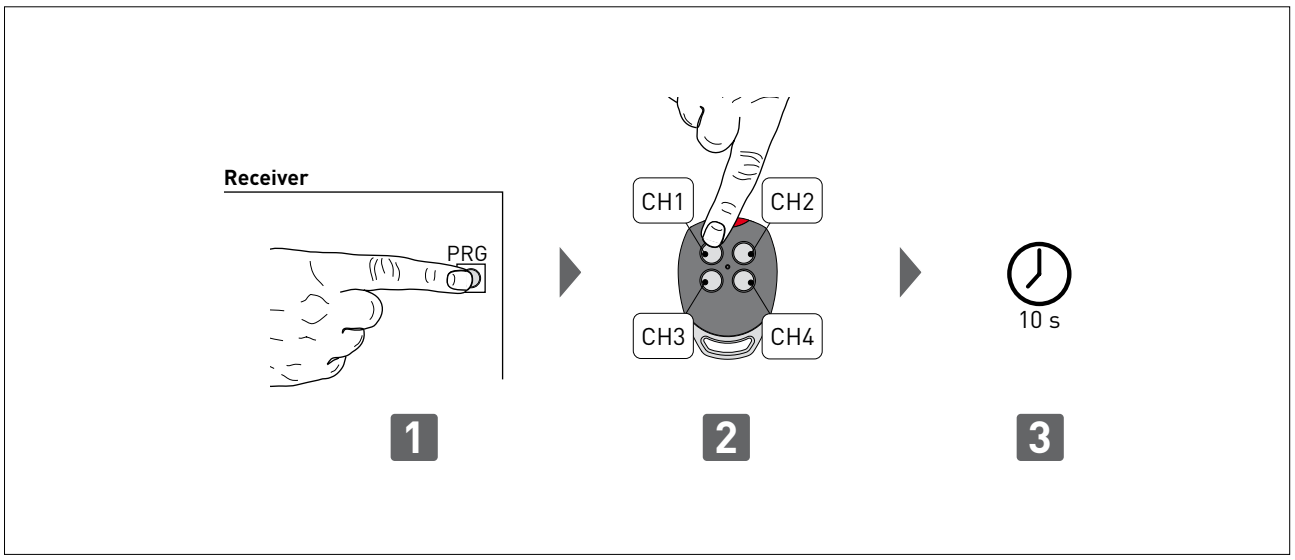
6.3 Jumper

Jumper	Description	OFF	ON
JR3	Incorporated radio receiver.	Disabled.	Enabled.
JR4	Overtravel reduction. Reduces the overtravel distance for the door wing.	Disabled.	Enabled. NOTE: preferably set JR4=ON if the door wing performs an excessive overtravel.
JR6	Application type.	Sliding gate.	Other applications.
JR10	Maximum power start.	Disabled. The motor starts with the voltage set with RF.	Enabled. The motor starts at maximum power for 1 s.
NIO	Electronic antifreeze system. Maintains motor function even at low ambient temperatures. NOTE: for correct operation, the control panel must be exposed to the same ambient temperature as the motors.	Enabled. ATTENTION: do not use with E1AJ.	Disabled.
SO	Reversal safety switch function.	With the automation blocked, if the contacts 1-8 or 41-8 are open, it is possible to activate the opening operation. NOTE: after the activation of the proximity limit switch closes the opening of the safety contact 1-8, 41-8 provokes the STOP during the closing phase.	With the automation blocked, if the contacts 1-8 or 41-8 are open, any operation is impossible.
6→4	Control 1-6 function.	Closing.	Stop.

6.4 Signals

LED	On	Flashing
POWER	24 V power supply	/
SA	Indicates that at least one of the safety contacts is open.	Safety test failure (terminal 41). Operations count performed (only when control panel is switched on): = 1000 operations = 10000 operations
IN	Activated at every command and adjustment to the dip-switch and jumper.	/
11	Indicates that the 0-11 limit switch contact is open.	/
12	Indicates that the 0-12 limit switch contact is open.	/
SIG	Activated during the radio reception phase or transmitter memorisation.	Indicates the absence of the memory module.

7. Radio



The control panel is equipped with a radio receiver with a frequency of 433.92 MHz.
The antenna consists of a rigid wire, 173 mm long, connected to the ANT clamp.
It is possible to increase the range of the radio by connecting the antenna of the flashing lights, or by installing the tuned BIXAL antenna.
NOTE: to connect the external antenna to the control panel, use a coaxial cable type RG58 (max 10 m).
Check that the storage module is inserted on COM connector of the control panel.
Up to 200 remote controls can be stored in the storage module.
WARNING: if the radio receiver on the control panel is not used, set JR3=OFF and remove the storage module.

Transmitter storage:
- press the PRG button on the radio receiver or on the control panel; the SIG LED lights up;
- make a transmission by pressing one of the desired CH buttons of the transmitter (within the range of the radio receiver). The transmitter is now stored. During this phase, the SIG LED flashes. When the SIG LED is again lit up, it is possible to validate another transmitter. Validate all the new transmitters by making a transmission as indicated;
- you automatically exit the procedure 10 seconds after the last transmission, or you can press the PRG button again (the SIG LED goes off).

Up to four CH keys of a single remote control can be stored:
- if only one (any) CH key of the remote control is stored, command 1-5 (step-by-step/opening) is carried out;
- from two to four CH keys of a single remote control are stored, the functions matched with the CH keys are as follows:
    - CH1 = command 1-5 step-by-step/opening;
    - CH2 = partial opening command, it causes the automation to open for about 1 m;
    - CH3 = command to switch on/off the courtesy light;
    - CH4 = stop command, equivalent to impulsive command 1-9.

Transmitter cancellation:
- keep pressed for 3 s the PRG button on the radio receiver or on the control panel, the SIG LED begins to flash;
- to erase all the transmitters from the memory of the radio receiver keep pressed for 3 s again the PRG button;
- to erase a single transmitter, press one of the previously stored CH keys of the transmitter to be erased;
- the cancellation is confirmed by the quick flashing of the SIG LED.

If the control panel is replaced, the storage module being used can be inserted in the new control panel.

ATTENTION: the insertion and extraction of the BIXMR2 memory must be carried out in the absence of a power supply.

For further information see the user manual for GOL series transmitters.

IP2045EN - 2013-03-26

8. Starting

- Bridge the NC safety contacts with a jumper.
- Before starting up, check the application type selected (see JR6 jumper).
- Any limit switches installed must be adjusted so that they are triggered near the mechanical opening and closing end stops. Set TM=MAX.

NOTE: limit switches must be kept pressed until the operation has been completed.

- If no limit switches are installed, bridge terminals 0-11 and 0-12 with jumpers and set TM to half.
- Set TC=MAX. Set RF and R1 to half.
- Using DIP2, set the direction.
- Switch on power.

WARNING: The following operations are performed with no safety devices.

- Perform opening and closing commands and check that the automation functions correctly and that the limit switches (if installed) are correctly set.

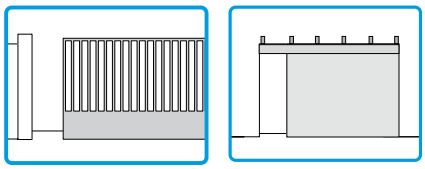
NOTE: if mechanical stops are used to block the stroke of the automation, or a proximity limit switch with N.O. contact, adjust the TM trimmer in order to obtain an operation time 2-3 s greater than the time effectively taken by the automation.

- Connect the safety devices (removing the relative jumpers) and check that they function correctly.
- If required, regulate the automatic closing by means of the TC trimmer.
- Set RF to a position that allows the automation to function correctly while ensuring the safety of the user in the event of collision.
- Set obstacle thrust with R1.
- NOTE: ensure that the forces exerted by the door wings are compliant with EN12453-EN12445 regulations.
- Connect any other accessories and check operation.
- Once the start up and check procedures are completed, close the container.

9. Troubleshooting

Problem	Possible causes	Remedy
Automation does not open or close.	No power. (POWER led off).	Check that the control panel is powered correctly.
	Short circuited accessories. (POWER led off).	Disconnect all accessories from terminals 0-1 (voltage must be 24 V=) and reconnect one at a time.
	Blown line fuse. (POWER led off).	Replace fuse.
	Safety contacts are open. (SA led on).	Check that the safety contacts are closed correctly (N.C.).
	Safety contacts not correctly connected or self-controlled safety edge SOFA1-SOFA2 not functioning correctly. (SA led flashing).	Check connections to terminals 6-8 on control panel and connections to the self-controlled safety edge SOFA1-SOFA2.
	Release microswitch open. (11 and 12 led on).	Check that the hatch is closed correctly and the microswitch makes contact.
	The motor thermal overload switch is open.	Check for continuity between the phases U-V-W of the motor disconnected from the control panel.
	The remote control does not work.	Check the correct memorisation of the transmitters on the incorporated radio.
	The remote control does not work. (SIG led flashing).	Memory module BIXMR2 absent.
Automation opens but does not close.	Safety contacts are open. (SA led on).	Check that the safety contacts are closed correctly (N.C.).
	Safety contacts not correctly connected or self-controlled safety edge SOFA1-SOFA2 not functioning correctly. (SA led flashing).	Check connections to terminals 6-8 on control panel and connections to the self-controlled safety edge SOFA1-SOFA2.
	Photocells activated. (SA led on).	Check that the photocells are clean and operating correctly.
	The automatic closing does not work.	Check that the TC trimmer is not set at the maximum.
The automation is very weak and does not invert the movement.	The motor's condenser has an incorrect capacity value.	Replace the motor's condenser.
External safety devices not activating.	Incorrect connections between the photocells and the control panel.	Connect NC safety devices together in series and remove any bridges on the control panel terminal board.
The remote control has limited range and does not work with the automation moving.	The radio transmission is impeded by metal structures and reinforced concrete walls.	Install the antenna outside. Substitute the transmitter batteries.

10. Example applications for sliding door and gates



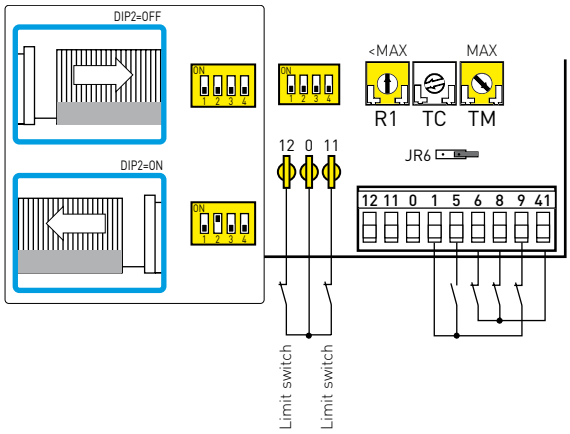
When control panel is used for sliding automations operations:
- set JR6=OFF;
- set TM=MAX;
- select the proper opening direction by means of DIP2.

(Example 1). Connect opening and closing limit switches N.C. contacts to plug 12-0-11;

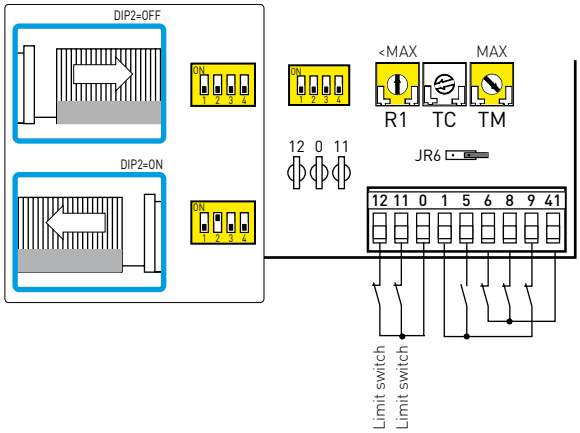
or

(Example 2). Connect opening and closing limit switches N.C. contacts to terminals 0-11-12.

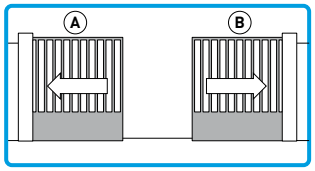
With the above connections, when limit switches operate the wing stops.
In the event of obstacle detection, the wing stops and releases during opening operation and reopens during closing operation.



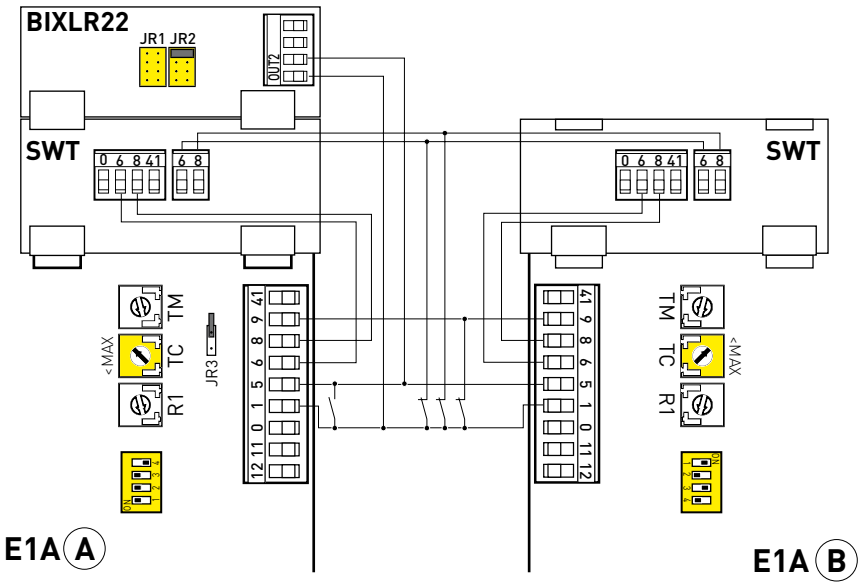
NOTE: if the self-controlled safety edge SOFA1-SOFA2 is used, make the connections indicated in par. 4.1.



11. Example of automation in parallel



It is possible to command two automations [A] and [B] side by side, making the connections indicated in figure.
Commands 1-5 and the remote control (with DIP1=ON) are equivalent to a total opening command.
To manage both automations with a single remote control, do not use the radio receivers on the control panels, but insert a BIXLR22 receiver.
The automatic closing is obtained by regulating the TC trimmer not at the maximum, and in the same position in both control panels.

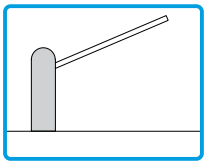


NOTE: the opening and closing movements are not synchronised.

ATTENTION: in the absence of safety edges SOFA1-SOFA2, connect commands 1-6 and 1-8 to the SWT card.

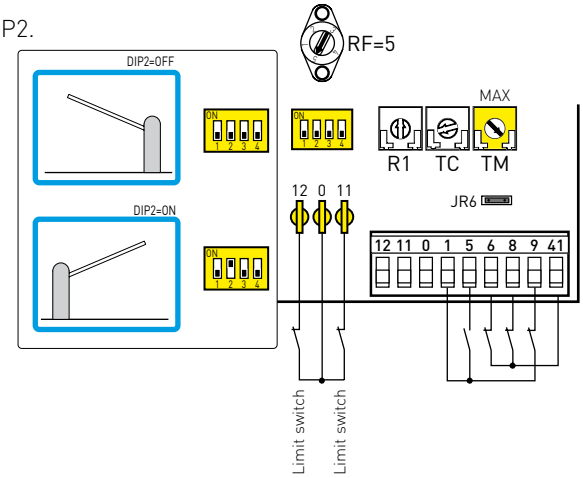
IP2045EN - 2013-03-26

12. Example application for barriers

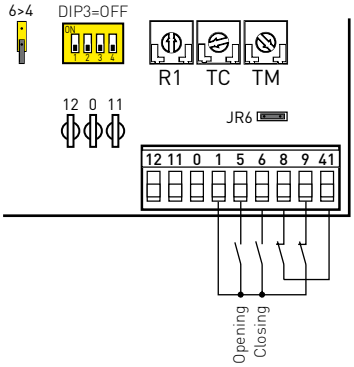


When control panel is used for barriers operations:
- set RF=5 (MAX);
- set TM=MAX;
- set JR6=ON;
- select the proper opening direction by means of DIP2.

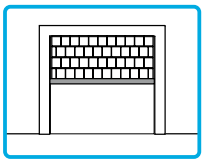
(Example 1). Connect opening and closing limit switches N.C. contacts to plug 12-0-11.



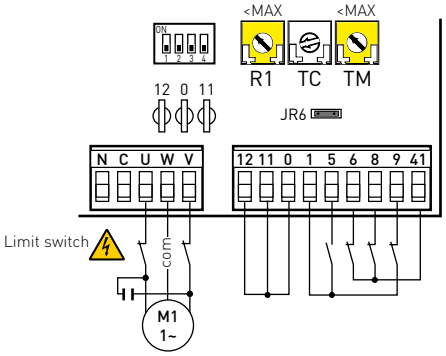
(Example 2). Control N.C. 1-6 (safety stop) can be changed into control N.O. 1-4 (closing) setting 6→4=OFF.
To have the barrier close again soon after transit between the photocells (or other safeties connected to 1-8), set DIP3=OFF.



13. Application example for rolling shutters

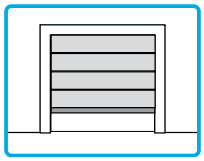


When the control panel is used in applications for rolling shutters:
- set JR6=ON
- connect the N.C. limit switches in succession to the motor phases
- make a jumper with the terminals 0-11-12.



NOTE: if the control panel is used in the hold to run mode, disconnect terminal 9 (see example 1 in Section 14).

14. Application example for sectional overhead doors

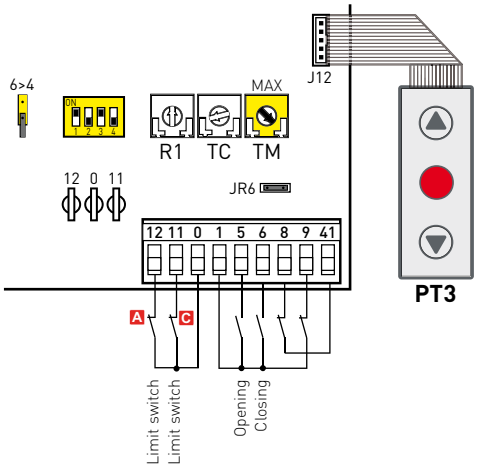


(Example 1)
When the control panel is used in applications for sectional automations:

- set TM=MAX;
- connect opening and closing limit switches N.C. contacts to terminals 0-11-12:
- select the opening control by means of DIP1=ON;
- select the direction of the movement by means of DIP2=OFF;
- select the closing control by setting 6→4=OFF.
- set JR6=ON;

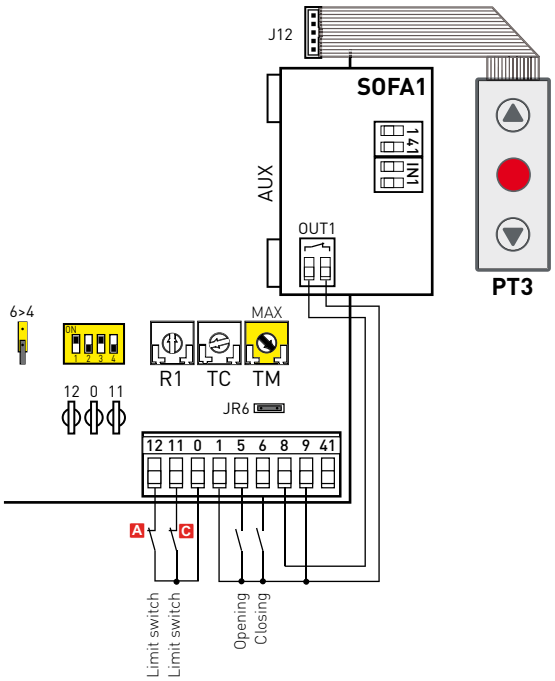
NOTE: to use electronic control panel in hold to run mode, disconnect terminal 9.

In this case, the opening (1-5) and the closing (1-6) controls operate only if kept pressed, if released the automation will stop.
Automatic closing and radio remote controls are disabled.



(Example 2)
If you have connected the self-controlled safety edge SOFA1 in closing, it is possible to make the following connections:

- set TM=MAX;
- connect opening and closing limit switches N.C. contacts to terminals 0-11-12:
- select the opening control by means of DIP1=ON;
- select the direction of the movement by means of DIP2=OFF;
- select the closing control by setting 6→4=OFF;
- set SO=OFF.



IP2045EN - 2013-03-26

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IP2045EN - 2013-03-26

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